CDAT 4.0 Features

Major Changes or Bug Fixes			
Impact	Package	Section	Change
1	CDAT	Website	Website is now completely revamped thru plone interface
1	Cdms	Axis	Time dimension does not generate bounds automatically anymore – use cdms.setAutoBounds('on') –
1	Cdms	Curvilinear grids	Added conversion routines: rect => curve => generic
1	Cdms	Curvilinear grids	Added routines to write grids to external files in scrip format
1	Cdms	Curvilinear grids	Can read grids from scrip remap files
1	Cdms	Curvilinear grids	CurveGrids can be supplied in the axis list.
1	Cdms	Curvilinear grids	getMesh returns a transposed mesh grid if requested.
1	Cdms	Curvilinear grids	MV works with curvilinear grids
1	Cdms	Curvilinear grids	On reading grids from files, check for cell convexity. Where that fails by default fix cells that straddle the 0 / 2pi boundary.
1	Cdms	I/O	Trapped seg faults on closed file objects.
1	Cdms		Fixed memory leaks.
1	Doc	Tutorials	New tutorials
1	Exsrc	DODS	Now builds by default under Linux, updated to Version 3.4
1	Install	CDAT	Mac OS X supported
1	Ioapi	Contrib	Suppor tfor Ioapi, in the build and python module to access it.
1	Vcdat	DV	A number reflecting selection/operation order appears next to selected variable
1	Vcdat	DV	Templates and Graphic Method Listbox available (on/off) in Variables and Calculator area
1	Vcdat	Editors	Graphic Method Editors updated, preview/reset option added
1	Vcdat	Editors	Template editor accessible from VCDAT (click and drag technology)
1	Vcdat	General	4 mode: 1–user defined layout; 2– Browse Variable; 3– Data Manipulation; 4– Graphics Display
1	Vcdat	GUI	Layout changed, now has mode for plot edititng, letting you copy/paste and edit existing template and method
1	Vcdat	Plot	Annotation pop–up available, with preview/reset/apply/cancel
1	Vcdat	Plot	Page Layout Table to control what is displayed on the VCS Canvas, can turn on/off plots with one click
1	Vcs	Animations	update to handle two or more on a page
1	Vcs	Animations	Can read from a file
1	Vcs	Animations	Can save to a file
1	Vcs	Curvilinear grids	Handled automatically
1	Vcs	Projection	Added gctp package to vcs, 28 new types of projection avalaible
1	Vcs	Templates	Template editor by clicking, font editor, projection editor, etc....
Important Changes or Bug Fixes			

2	Cdms	bounds	bounds not generated automatically anymore, except for latitude and longitude dimensions
2	Cdms	I/O	Added writeScripGrid, readScripGrid can read from a SCRIP mapping file
2	Cdms	Libcdms	Removed spurious calendar error
2	Cdms	Time axis	TransientAxis getCalendar returns DefaultCalendar if none specified. This is consistent with FileAxis.getCalendar()
2	contrib	Thermo	Package added to plot thermodynamic diagrams
2	Doc	Tutorials	Data can now be anywhere on user's space
2	Genutil	Arrayindexing	New module, allows array indexing, e.g:C=genutil.arrayindexing.get(A,B)
2	Genutil	Filters	Added filters module, so far only "running average", 121 and custom
2	Genutil	Statistics	fixed a bug in linear regression when trend is 0, probability are not set to missing
2	Genutil	Xmgrace	xmgrace already up , but can be repiped to form another script
2	Install	All	Updated external Packages to their latest versions, see README files
2	Install	CDAT	Cygwin "unofficially" supported
2	Install	CDAT	Installation GUI added
2	Install	Cdms	Added −−cdms−only option to express_install.
2	Install	Cdms	Fix CDMS build for FreeBSD
2	Install	Exsrc	−−help option in install_script
2	Install	Exsrc	−−list option added
2	Install	Exsrc	Now can build indiviudal package or exclude some
2	Vcdat	0D (numbers)	if no dimensions are present, then show the single vaule in the Defined Variables window
2	Vcdat	1D plot	Overlay applies, use page layout for other types
2	Vcdat	DV	Different mode of variable selection single/multiple
2	Vcdat	GUI	most window now have a preview/reset/cancel button
2	Vcdat	GUI	Remove the 1−Plot, 2−Plot, 3−Plot, 4−Plot per page
2	Vcdat	I/O	Can read column arranged ascii files
2	Vcdat	I/O	Save netcdf now has browser to go between directories
2	Vcdat	I/O	Simple ascii file reader added
2	Vcdat	I/O	Simple binary file reader added
2	Vcdat	Menu	New interface to user menu, more robust and intuitive
2	Vcdat	Scripting	Added limited recordings of the functions (not available on beta)
2	Vcs	Boxfill	Now can specify levels just like in isofill
2	Vcs	Isofill	Now has legend otpion (i.e can specifiy where to put values)
2	Vcs	Plot	new colormap by default
2	Vcs	Plot	ratio keyword added allows user to set plot aspect ration (for lat/lon plot auto can be passed)
2	Vcs	Plot	Template can be moved,scaled,movedto a location all at once, instead of each element at once (scale,move,moveto functions)

2	Vcs	Scripting	vcs2py script added, converts vcs scripts to python
2	Vcs	Taylordiagrams	Every aspcet of plot controlled via template
2	Vcs	Taylordiagrams	referencecolor attribute suppressed
2	Vcs		Linewidth option added where line are controlled
2	Vcs		User can click on the plot and get worldcoordinate/index values, and actual value
Significant Changes or Bug Fixes			
3	Cdms	I/O	picker selector, let you pick non contiguous values
3	cdutil	times	setTimeboundsYearly, setTimeBoundsXHourly,etc added
3	Cdutil	Times	Yearly and xDaily Time Bounds setting, plus accept either slab or axis
3	Contrib	F2py	Added F2PY, fortran wrapper
3	Genutil	Filters	initial package for filtering capabilities
3	Genutil	vertical	log and linear interpolation now available
3	Install	64bit	initial suppor tfor 64bit machines
3	Install	exsrc	Now can build one package only or not build one specific package with −−package−only or −−without−package options
3	Install	Fortran	support for gfortran added into Pyfort and build process
3	Install	HDF	−−HDF= option let user point to HDF libraries
3	Install	Scrip	Source code distributed but not installed
3	Vcdat	DV	Fix for the automatic Numeric and MA conversion to MV. The user now has a choice to convert Numeric and MA to MV. That is, the user will need to select the "Automatic Conversion to MV" toggle in the "Preferences" menu to turn this feature on or off
3	Vcdat	DV	Replacing the eval call for the exec call. Now the user can enter any command
3	Vcdat	Plot	New tab to control plot annotatinos
3	Vcs	plot	automatic "nice" labels for time axes
3	Vcs	Plot	Outline graphic method can now have line width/type/color set
3	Vcs	Plot	Very High Resolution Continent Files generated via GMT are available on the web
3	Vcs	Templates	Scaling, now can scale fonts
3	Vcs	Text	Bg option works
Notable Changes or Bug Fixes			
4	Cdms	I/O	Implemented isClose().
4	Contrib	Install	Automatically built
4	Exsrc	VTK	VTK (beta version) added to distrib, not built by default this is experimental
4	Genutil	Statistics	new argument on most function: max_pct_missing (default=100%), mask out result if pct of missing is > than value
4	Genutil	Xmgrace	Now can pass arguments at init time, safe mode problem introduced by latest versions of xmgrace fixed
4	Install	Ghostscript	Now installed in exsrc

4	Vcdat	Animations	possible to save et reload in vcdat
4	Vcdat	General	Can define colors using intensiy
4	Vcdat	General	Predefined Region
4	Vcdat	General	Retains user settings
4	Vcdat	Taylordiagram	GUI updated
4	Vcs	Primitives	Projection accessible
4	Vcs	Taylordiagram	standard dev added to xaxis
4	Vcs	Taylordiagram	taylor control the xtic/ytic/cticks
4	Vcs	Yxvsx, Xyvsy	Auto now works again (no more blank canvas)
4	Vcs		Improved thread support
Good to Know Changes or Bug Fixes			
5	Cdms	axes	toRelativeTime function added
5	Cdms	Cdscan	Added −−filesxml option
5	Cdms	Cdscan	Added −nofiles, −−execfile option
5	Cdms	Cdscan	Added −−notrim−lat option
5	Cdms	Curvilinear grids	Raise error if nonrectangular grid has no bounds associated
5	Cdms	I/O	Added gridftp protocol
5	Cdutil	Times	fixed times.setTimesBoundsMonthly for end of month storage
5	Cdutil	Vertical	Vertical Interpolation Tools (sigma2pressure)
5	Contrib	IaGraph	Package of interactive graphing tools. IaGraph will create line plots, scatter plots, and contour plots
5	Contrib	udunits	Package to deal with units conversions
5	Exsrc	R	Added R (statistical package) sources to distrib, not built by default
5	Genutil	Xmgrace	dataset can be swaped, move , copied
5	Genutil	Xmgrace	safe/nosafe problem solved, version controled before passing the argument
5	Ncml		New Package
5	Scrip		New module, interface to scrip regridder
5	Vcdat	DV	Icons tools added
5	Vcdat	General	Keep (or not) Windows in front of main window
5	vcs	Canvas	geometry can be set before opening/plotting anything
5	Vcs	Plot	new colormap by default
Minor Changes or Bug Fixes			
6	Cdms	Axis	Align isLatitude, isLongitude test with CF convention
6	Contrib	ComparisonStatistics	fixed a bug for TimeComponent 18, the seasonal weights used in computing the annual means were slightly off
6	Contrib	Rpy	Added Rpy package, works if you have R on your system
6	Exsrc	Pbm	Pbmplus replaced with netpbm on Linux and Mac systems
6	Genutil	Statistics	Geometric Mean, Median and Rank functions added
6	Genutil	xmgrace	−−nosafe option now recognized for both older and newer version of xmgrace
6	Vcdat	1D plot	Fixed multiplier annotation for 1D plots.
6	Vcdat	DV	Support for chemistry attributes

6	Vcdat	General	Exit Popup to retain settings (can be turned off)
6	Vcdat	Menu	Option pull down from main menu was changed to "Preferences"
6	Vcs	Animations	bug fix for pan and zoom
6	Vcs	Templates	Ratio options now supported, let user definean y/x ratio or if lat/lon let vcs find a good one
7	Contrib	ComparisonStatistics	Handles fortran NaN
7	Vcdat	Annotations	Changed annotation so a blank text field will print nothing in on the Canvas
7	Vcs	boxfill/isofill	Extension bug fix, if levels set after ext_1
7	Vcs	Taylordiagram	Taylordiags single precision ok now
8	Cdms	Cdscan	Fixed bug when file has 'bounds' dimension.
8	Contrib	ComparisonStatistics	Updated doc
8	Vcs	Markers	0 means no marker
8	Vcs	Taylordiagram	fixed taylordiagrams.script and also listelements('taylordiagram') now works (x.show returns None)
9	Cdms	Drs	Fixed the cycle process for DRS files. Must close DRS files before you open them again.
9	Cdutil		Removed Propertied Class dependencies, replaced with standard python (object/property)
9	Contrib	Pyfort	New version 8.4
9	Vcdat	General	gui memory limit moved from 64Mb to 256Mb by default
9	Vcdat	General	User can defined the name of its default template/graphic methods
9	Vcs	1D plots	Bug fixes for graphics methods. That is, if the data only has 1 dimensions and 2 or more dimensions are required, then use Yxvsx to plot the data
9	Vcs	Printer	lanscape/portrait argument bug fix
9	Vcs	Taylordiagram	Skill drawing, bug fix
9	Vcs		Major changes to the VCS graphics methods
9	Vcs		Fixed attribute settings for missing attributes
10	Cdms	I/O	Fixed bug in dataset.write when time axis is a float. This shows up with Numeric V23.1
10	Cdms		Added xmllib to ditrib since it'll be abandoned in future python
10	Cdutil	VariableMatcher	Added comment keyword
10	Genutil		Removed Propertied Class dependencies, replaced with standard python (object/property)
10	Vcs	Colormap	Added the NCAR Color Map to the initial.attribute file.
10	Vcs	Colormap	Cleanedup
10	Vcs	Templates	fixed JYP comments about "inconsistency" on comment#1 of UL1of4 template
10	Vcs		Removed Propertied Class dependencies, replaced with standard python (object/property)
11	Cdms	Curvilinear grids	auxcoord, gengrid modules
11	Esg		New Package

11	Install	CDAT	Building GNU tar on older systems...
11	Install	CDAT	−−psql option added